

REMARKS/ARGUMENTS

Applicant has reviewed and considered the Final Office Action dated October 19, 2005 and the cited references therein. In response thereto, claims 1 and 11 are amended. Claims 1-5, 8-9, and 11-19 are pending in the present application.

Rejection Under 35 U.S.C. § 103

Claims 1, 3, 9 are rejected 35 U.S.C. 103(a) as being unpatentable over Rose (U.S. Patent No. 6,617,725) in view of Hielm (U.S. Pub. No. 2004/0232250). Applicant respectfully traverses the rejection for at least the following reasons.

Claim 1 recites a ring type integrated starter/generator, comprising: a ring shaped stator having a stator axis; a ring shaped rotor having a rotor axis; and an engine or water pump; wherein said stator is mounted on an engine body or a housing of a flywheel of said engine or on a housing of said water pump, said rotor is mounted on said flywheel of said engine or on an impeller of said water pump so that the stator axis is aligned with the rotor axis, said stator axially faces said rotor in the direction of the stator axis and the rotor axis, and said starter/generator further comprises a set of large current-conversion controller with low power consumption, which includes a control circuitry and a MOSFET grid-drive circuitry.

Neither Rose nor Hielm does it disclose or teach an integrated starter/generator as recited. Rose discloses a generator integrated into an engine but fails to teach or suggest that the generator is concurrently used as a starting motor of the engine, nor does Rose provide any technical solution or enabling description of such integrated or composite electric machine.

Hielm discloses a heat generator for a motor vehicle. More particularly, Hielm discloses a heat generator having a rotor (1), a stator (13) in which the rotor induces by rotation electrical currents that generate heat in the stator, with the generated heat being used to increase the working temperature of the engine, i.e. internal combustion engine (3). Accordingly, Applicant respectfully submits that Hielm merely discloses a generator, not an integrated starter/generator as recited. In addition, nowhere in Hielm does it teach or suggest an integrated or composite starter/generator.

One of the advantages of the claimed invention is that it provides a compact construction for conventional electric machines and mode of mechanical transmission of automotive engines, so that the association of electric machines with engines or automotive water pumps will be more compact as well as realizing an integrated, efficient “electro-mechanical” starting and electric generation. As described in the specification, such an integrated starter/generator can be used not only as an electro-motor for starting the engine when the engine is in a stopped status but also as a generator when the engine is in an operating status. A set of large current-conversion controller with low power consumption, which includes a control circuitry and a MOSFET grid-drive circuitry, is provided for conducting the switch between the starting of the engine and the electric generation, i.e. between a dual mode – a starter mode and a generator mode. None of the cited references suggest or provide any motivation for such an integrated starter/generator.

Thus, Applicant respectfully submits that claim 1 patentably distinguishes over Rose in view of Hielm. Claims 3 and 9 which are dependent from claim 1 are also patentable for at least the same reasons above.

Allowed Claims

Claims 2, 4-5, 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 4-5, and 8 are also allowable in view of the above discussion.

Claims 11-19 are allowed.

Conclusion

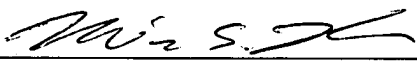
In view of the above, it is respectfully submitted that the present application is in condition for allowance. Reconsideration of the present application and a favorable response are respectfully requested.

If a telephone conference would be helpful in resolving any remaining issues, please contact the undersigned at 612-752-7367.

Respectfully submitted,

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